

Claims:

- 1 1. A system for communication between a host device and a peripheral device comprising:
2 a peripheral device to encode data and a host device to decode data under a Universal
3 Serial Bus (USB) protocol to form a USB packet;
4 wherein:
5 the USB packet is encoded using a Bluetooth protocol to form a Bluetooth packet
6 for the transmission between the host device and the peripheral device.
- 1 2. The system of claim 1, wherein the USB packet is encoded using the Bluetooth protocol
2 by adding a transaction header to the USB packet so that the USB packet is included as payload
3 in the Bluetooth packet.
- 1 3. The system of claim 2, wherein the peripheral device is a Human Interface Device (HID).
- 1 4. The system of claim 3, wherein the USB protocol is an HID protocol.
- 1 5. The system of claim 2, wherein a channel identifier (CID) is used to identify each
2 endpoint of one or more endpoints associated to the peripheral device.
- 1 6. The system of claim 2, wherein the Bluetooth protocol utilizes a logical link control and
2 adaptation protocol (L2CAP) to provide segmentation and reassembly (SAR).

1 7. The system of claim 6, wherein the Bluetooth packet is encapsulated into a L2CAP
2 packet of a packet size in preparation for conversion to the one or more baseband packets for
3 Bluetooth transmission.

1 8. The system of claim 7, wherein the Bluetooth protocol utilizes the L2CAP to provide
2 SAR in the conversion of the L2CAP packet to the one or more baseband packets when the
3 packet size is too large to include the information of the L2CAP packet in one baseband packet
4 of the one or more baseband packets.

1 9. The system of claim 8, wherein the Bluetooth protocol utilizes the L2CAP to provide
2 SAR when the packet size is larger than a maximum transmission unit of each baseband packet
3 of the one or more baseband packets.

1 10. The system of claim 9, wherein the one or more baseband packet is capable of being
2 transmitted from the host to the HID and from the HID to the host.

1 11. The system of claim 10, wherein upon transmission from the host to the HID, the HID is
2 capable of recognizing any among a timeout, a data signal, or a stall signal.

1 12. The system of claim 11, wherein upon transmission from the HID to the host, the host is
2 capable of recognizing any among a timeout, an acknowledgement signal, a non-
3 acknowledgement signal, or a stall signal.

1 13. A method for communication between a host device and a peripheral device, comprising
2 the steps of:
3 encoding data under a Universal Serial Bus (USB) protocol to form a USB packet; and
4 encoding the USB packet with a Bluetooth protocol to form a Bluetooth packet for
5 transmission between the host device and the peripheral device.

1 14. The method of claim 13, wherein the USB packet is encoded using the Bluetooth
2 protocol by adding a transaction header to the USB packet so that the USB packet is included as
3 payload in the Bluetooth packet.

1 15. The method of claim 14, wherein the peripheral device is a Human Interface Device
2 (HID).

1 16. The method of claim 15, wherein the USB protocol is an HID protocol.

1 17. The method of claim 14, wherein a channel identifier (CID) is used to identify each
2 endpoint of one or more endpoints associated to the peripheral device.

1 18. The method of claim 14, wherein the Bluetooth protocol utilizes a logical link control and
2 adaptation protocol (L2CAP) to provide segmentation and reassembly (SAR).

1 19. The method of claim 18, wherein the Bluetooth packet is encapsulated into a L2CAP
2 packet of a packet size in preparation for conversion to the one or more baseband packets for
3 Bluetooth transmission.

1 20. The method of claim 19, wherein the USB/Bluetooth protocol utilizes the L2CAP to
2 provide SAR in the conversion of the L2CAP packet to the one or more baseband packets when
3 the packet size is too large to include the information of the L2CAP packet in one baseband
4 packet of the one or more baseband packets.

1 21. The method of claim 20, wherein the Bluetooth protocol utilizes the L2CAP to provide
2 SAR when the packet size is larger than a maximum transmission unit of each baseband packet
3 of the one or more baseband packets.

1 22. The method of claim 21, wherein the one or more baseband packet is capable of being
2 transmitted from the host to the HID and from the HID to the host.

1 23. The method of claim 22, wherein upon transmission from the host to the HID, the HID is
2 capable of recognizing any among a timeout, a data signal, or a stall signal.

1 24. The method of claim 23, wherein upon transmission from the HID to the host, the host is
2 capable of recognizing any among a timeout, an acknowledgement signal, a non-
3 acknowledgement signal, or a stall signal.

1 25. A system for communication between a host device and a Human Interface Device (HID)
2 comprising:

3 a peripheral device to encode data and a host device to decode data under an HID
4 protocol to form a Universal Serial Bus (USB) packet;

5 wherein:

6 the USB packet is encoded using a Bluetooth protocol to form a Bluetooth packet
7 for the transmission between the host device and the peripheral device by adding a transaction
8 header to the USB packet so that the USB packet is included as payload in the Bluetooth packet;

9 a channel identifier (CID) is used to identify each endpoint of one or more endpoints
10 associated to the peripheral device;

11 the Bluetooth protocol utilizes a logical link control and adaptation protocol (L2CAP) to
12 provide segmentation and reassembly (SAR).

1 26. The system of claim 25, wherein the Bluetooth packet is encapsulated into a L2CAP
2 packet of a packet size in preparation for conversion to the one or more baseband packets for
3 Bluetooth transmission.

1 27. The system of claim 26, wherein the Bluetooth protocol utilizes the L2CAP to provide
2 SAR when the packet size is larger than a maximum transmission unit of each baseband packet
3 of the one or more baseband packets.